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**Evaluation**

You may assign ten points to each of the six questions for a total of 60 possible points. The answers to the questions are given below. *Rate the answer to each question using the following scale: Excellent - 9-10 points; Very Good - 7-8 points; Good - 5-6 points; Satisfactory - 3-4 points; Poor - 1-2 points; and Unsatisfactory - 0 points.*

***Answers to Questions About Tsunamis***

1. A tsunami is a wave train, or a series of waves, that is generated in a body of water when some disturbance vertically displaces a column of water. Tsunamis differ from other water waves in several key ways. Normal water waves are generated by wind rather than a vertical displacement of water. Normal water waves generally have short periods and wavelengths, while tsunamis can have wavelengths greater than 100 kilometers and periods of about one hour.
2. Natural events including earthquakes, landslides, volcanic eruptions, and meteorite impacts can generate a tsunami.
3. Tsunamis are sometimes incorrectly referred to as "tidal waves." Tsunamis are not related to tides, which are caused by the gravitational force exerted by the Moon and Sun on the Earth. The term "seismic sea wave" is also somewhat misleading. While tsunamis are most often caused by earthquakes, which are seismic events, they can also be caused by landslides and meteorite impacts, which are not seismic events.
4. The "Ring of Fire" is an area of intense geologic activity. Around the edges of the Pacific Ocean, oceanic plates are subducted beneath continental plates. The incidence of volcanic activity and earthquakes is relatively high in this area. These seismic events can result in the generation of tsunamis.
5. Answers will vary based on student research. Lists may include the Lituya Bay, Alaska tsunami of 1958, the Chilean tsunami of 1960, the tsunami which followed a deadly earthquake in Turkey in 1999, and tsunamis which struck the Japanese islands of Hokkaido and Okushiri in 1993 and 2003.
6. The Alaska Tsunami Warning Center, located in Palmer, Alaska, serves Alaska, British Columbia, Washington, Oregon, and California. The Pacific Tsunami Warning Center, located in Ewa Beach, Hawaii, serves Hawaii and the countries of the Pacific rim. Scientists at these centers monitor earthquake activity throughout the world. When a sizable earthquake occurs in a location that might cause a tsunami to be generated, scientists use computer models to predict locations that could be affected, and how high the water could be in those locations. Based on the level of threat, a warning could be issued. The warning centers disseminate information to emergency officials and the media. Both rely on commercial radio and television to relay information to coastal residents. Warnings are also broadcast on radio frequencies including VHF and MF for individuals who have marine radios.

***Evaluating the Newspaper Articles***

Use the evaluation rubric or other means to assess the newspaper articles. Evaluation of the articles should include both self-assessment and teacher assessment. If time permits, students could work in pairs to provide feedback about the writing.

**Conclusion**

As students conduct Internet research and answer questions, they will gain knowledge about the nature of tsunamis. Students should be able to explain how tsunamis form, and the characteristics that make them different from normal water waves. They should be able to identify world locations that are most at risk for tsunamis, and discuss tsunami events throughout recent history that have affected coastal populations. Students should be able to explain how warning systems work to keep residents informed of potential danger, and should be able to describe appropriate actions to take to increase the odds of surviving a tsunami. Students should be able to use the knowledge gained to develop three newspaper articles which take varying angles on the topic of tsunamis. They should understand the importance of educating coastal residents, particularly those who live in areas that are most likely to be affected by a tsunami, about the dangers of this devastating natural phenomenon.

**Newspaper Article Rubric**

|  |  |  |  |
| --- | --- | --- | --- |
| **Newspaper Article Rubric** | **Points Possible** | **Self-Assessment** | **Teacher Assessment** |
| The articles are clear, well-written, and easy to follow. | 10 |  |  |
| The articles are research-based and include factual information. | 10 |  |  |
| The articles are both interesting and informative. | 10 |  |  |
| The articles have the tone and feel of actual newspaper articles. | 10 |  |  |
| Overall “Goodness” | 10 |  |  |

*Rate each category according to the following scale:*  
*Excellent - 9-10 points; Very Good - 7-8 points; Good - 5-6 points; Satisfactory - 3-4 points; Poor - 1-2 points; and Unsatisfactory - 0 points.*

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